What is claimed is:

1. A method of operating an internal combustion engine, comprising:
introducing a nitrogen-containing detergent composition comprising

(A) a reaction product of a hydrocarbyl-substituted acylating agent and an amine;

(B) a hydrocarbyl-substituted amine;

(C) a Mannich reaction product of a hydrocarbyl-substituted hydroxy-containing aromatic compound, an aldehyde, and an amine;

(D) a high molecular weight polyetheramine prepared by reacting one unit of a hydroxy-containing hydrocarbyl compound with two or more units of butylene oxide to form a polyether intermediate, and aminating the polyether intermediate by reacting the polyether intermediate with an amine or with acrylonitrile and hydrogenating the reaction product of the polyether intermediate and acrylonitrile; or

(E) a mixture thereof into a combustion chamber of the engine during the operation of the engine wherein the detergent composition improves the performance of a lubricating oil of the engine.

2. The method of claim 1 wherein the detergent composition is introduced into the combustion chamber by injection from a dosing system or as a component of a fuel composition.

3. The method of claim 2 wherein the detergent composition is introduced into the combustion chamber as a component of the fuel composition wherein the detergent composition improves the performance of the fuel composition.

4. The method of claim 1 wherein the detergent composition (A) is the reaction product of a polyisobutenylsuccinic acylating agent and a polyethylenepolyamine wherein the polyisobutenyl group has a number average molecular weight of 150 to 5000.

5. The method of claim 1 wherein the detergent composition (B) is derived from a polyisobutylene having a number average molecular weight of 150 to 5000 and a polyamine.

6. The method of claim 1 wherein the Mannich reaction product is prepared from phenol alkylated with a polyisobutylene having a number average molecular weight of 120 to 3000, formaldehyde, and a secondary monoamine.

7. The method of claim 1 wherein the polyetheramine is represented by the formula $R(OCH_2CHR^1)_xA$ wherein R is a C_6 to C_{30} alkyl group or a C_6 to C_{30} alkyl-substituted phenyl group; R^1 is ethyl; x is a number from 5 to 50; and A is $-OCH_2CH_2CH_2NH_2$ or $-NR^2R^3$ wherein R^2 and R^3 are independently hydrogen, a hydrocarbyl group, or $-(R^4NR^5)_yR^6$ wherein R^4 is an alkylene group having 2 to 10 carbon atoms, R^5 and R^6 are independently hydrogen or a hydrocarbyl group, and y is a number from 1 to 7.

8. The method of claim 1 wherein the detergent composition further comprises a fuel additive selected from the group comprising a nitrogen-containing detergent, an amine-containing polyether, a lubricity agent, a fluidizer, a metal-containing detergent, a rust inhibitor, a corrosion inhibitor, an antioxidant, a low temperature flow improver, a demulsifier, an antifoaming agent, a valve seat recession additive, a combustion improver, a metal deactivator, or a mixture thereof.

9. The method of claim 8 wherein the detergent composition is a combination of a hydroxyalkyl-substituted fatty amine represented by the formula $RN[(A^1O)_xH][(A^2O)_yH]$ wherein R is a hydrocarbyl group containing 4 to 30 carbon atoms, A^1 and A^2 are independently alkylene groups having 2 to 18 carbon atoms, and x and y are independently zero or an integer where the sum of x and y is at least one; and a partial ester of a fatty carboxylic acid and a polyol wherein the ester has at least one free hydroxyl group.

10. The method of claim 1 wherein the engine is a compression-ignited engine or spark-ignited direct injection engine having an exhaust gas recirculation system.

11. The method of claim 1 wherein the engine is a spark-ignited or a compression-ignited engine having an exhaust treatment device, and the lubricating oil has at least one of the properties selected from the group consisting of a phosphorus content below 0.1% by weight, a sulfur content below 0.5% by weight, and a sulfated ash content below 1.5% by weight.

12. The method of claim 2 wherein the engine is a spark-ignited or a compression-ignited engine having an exhaust treatment device, and a fuel of the fuel composition has a sulfur content below 80 ppm by weight.

13. The method of claim 1 wherein the engine is installed in a motor vehicle and has a recommended drain interval for the lubricating oil of the engine of greater than 6,000 miles.

14. The method of claim 1 wherein the engine is a stationary engine having a recommended drain interval for the lubricating oil of the engine of greater than 150 operational hours.